Amendments to the Claims

1. (original) Method for the manufacture of a high temperature superconducting layer on a substrate (1a, 1b) comprising the following steps:

a. deposition of an $RBa_2Cu_3O_7$-layer (2)onto the substrate (1a, 1b) with a low growth rate, wherein R represents yttrium, an element of the group of rare-earth elements (atomic number 57-71) or mixtures of two or more of these elements;

b. deposition of an $XBa_2Cu_3O_7$-layer (3) onto the $RBa_2Cu_3O_7$-layer (2) with a high growth rate, wherein X represents yttrium, an element of the group of rare-earth elements (atomic number 57-71) or mixtures of two or more of these elements.

2. (original) Method according to claim 1, wherein the low growth rate is < 1nm/s and wherein the high growth rate is > 1nm/s, preferably > 2 nm/s.

3. (currently amended) Method according to claim 1 ~~or 2~~, wherein the $RBa_2Cu_3O_7$-layer (2) comprises a thickness of < 500 nm, preferably < 100 nm.

4. (currently amended) Method according to ~~one of the claims 1-3~~ claim 1, wherein the $RBa_2Cu_3O_7$-layer (2) has a thickness of > 5 nm.

5. (currently amended) Method according to ~~one of the claims 1-4~~ claim 1, wherein the $XBa_2Cu_3O_7$-layer (3) has a thickness of > 1µm.

6. (currently amended) Method according to ~~one of the claims 1-5~~ claim 1, wherein the $RBa_2Cu_3O_7$-layer (2) is deposited onto an at least biaxially textured substrate (1a) or a substrate with an at least biaxially textured buffer layer (1b).

7. (currently amended) Method according to ~~one of the claims 1-6~~ claim 1, wherein the $XBa_2Cu_3O_7$-layer (3) is deposited as a precursor layer, comprising the metal components of the high temperature superconducting layer.

8. (original) Method according to claim 7, wherein the precursor layer is transformed in a further method step by a temperature treatment with a high transformation rate into a superconducting $XBa_2Cu_3O_7$-layer (3).

9. (original) Method according to claim 8, wherein the transformation rate is > 2 nm/s.

10. (currently amended) Method according to ~~one of the claims 1-9~~ claim 1, wherein R represents a rare-earth element with a great ion radius (La, Pr, Nd, Sm, Eu, Gd) or compounds comprising to at least 50% these elements in mixtures with other rare-earth elements.

11. (currently amended) Layer system of a high temperature superconductor manufactured according to ~~a~~ the method of ~~any of the claims 1-10~~ claim 1.